ATM OAM Ping

The ATM OAM Ping feature sends an ATM Operation, Administration, and Maintenance (OAM) packet to confirm the connectivity of a specific permanent virtual circuit (PVC). The status of the PVC is displayed when a response to the OAM packet is received. The ATM OAM Ping feature allows the network administrator to verify PVC integrity and facilitates ATM network troubleshooting.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Prerequisites for the ATM OAM Ping Feature

A PVC corresponding to the virtual path identifier (VPI) and virtual channel identifier (VCI) values entered with the **ping** command should already exist. (For Cisco 827 series routers, the virtual circuit need not exist.)

For information about how to configure ATM PVCs, see the section "Configuring PVCs" in the chapter "Configuring ATM" in the *Cisco IOS Asynchronous Transfer Mode Configuration Guide*.

Restrictions for the ATM OAM Ping Feature

The ATM OAM Ping feature does not support pings based on the following:

- Network service access point (NSAP) addresses
- Multiple-hop loopbacks
- Loopback location identification

Information About the ATM OAM Ping Feature

Benefits of the ATM OAM Ping Feature

The ATM OAM Ping feature modifies the **ping**command, which can be used to send an OAM packet to verify PVC connectivity. The status of the PVC is displayed when a response to the OAM packet is received. This is a common method for testing the accessibility of devices.

The **ping atm interface atm** command provides two ATM OAM ping options:

- End loopback--Verifies end-to-end PVC integrity.
- Segment loopback--Verifies PVC integrity to the immediate neighboring ATM device.

The **ping atm interface atm** command is used to determine the following:

- Whether a remote host is active or inactive.
- The round-trip delay in communicating with the host.
- Packet loss.

The simpler **ping** command provides an interactive mode for testing ATM network connectivity. The **ping** command first sends an OAM command loopback cell to the destination and then waits for an OAM response loopback cell. The ping is successful only when the following criteria are met:

- The OAM command loopback cell reaches the destination.
- The destination is able to send an OAM loopback response cell back to the source within a predetermined time called a *timeout* . The default value of the timeout is 2 seconds on Cisco routers.

How to Use the ATM OAM Ping Feature

Testing Network Connectivity Using Ping in Normal Mode

This section describes how to test the network connectivity by using the **ping atm interface atm** command in normal mode; that is, by entering all values for the **ping** test on the command line.

SUMMARY STEPS

1. **enable**
2. **ping atm interface atm** *interface-number* *vpi-value* [*vci-value* [**end-loopback** | **seg-loopback**] [*repeat* [*timeout*]]]

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.

Step 2	**ping atm interface atm** *interface-number* *vpi-value* [*vci-value* [**end-loopback**	**seg-loopback**] [*repeat* [*timeout*]]]
		
		Example:
		
		`Router# ping atm interface atm 1/1.1 0 500 end-loopback`
		`1 2`
			Displays a response to confirm the connectivity of a specific PVC.

Testing Network Connectivity Using Ping in Interactive Mode

This section describes how to test network connectivity by using the **ping** command; that is, by providing values for the **ping** test by typing the value after the prompts displayed and pressing the **Enter** key. Press the **Enter** key without supplying a value to use the default.

SUMMARY STEPS

1. **enable**
2. **ping**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
Step 2	**ping** **Example:** `Router#` **ping**	Displays a response to confirm the connectivity of a specific PVC.

Aborting a Ping Session

To terminate a ping session, type the escape sequence **Ctrl-Shift-6**.

Configuration Examples for ATM OAM Ping

Verifying the Connectivity of a Specific PVC Example

The following example verifies the connectivity of a specific PVC by sending an ATM OAM packet and confirms the connectivity when it is successful:

```
Router# show
atm pvc 0/500
VC 0/500 doesn't exist on interface ATM1/0 - cannot display
ATM1/1.1: VCD: 2, VPI: 0, VCI: 500
UBR, PeakRate: N/A (UBR VC)
AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0
OAM frequency: 10 second(s), OAM retry frequency: 1 second(s)
OAM up retry count: 3, OAM down retry count: 5
OAM END CC Activate retry count: 3, OAM END CC Deactivate retry count: 3
OAM END CC retry frequency: 30 second(s),
OAM SEGMENT CC Activate retry count: 3, OAM SEGMENT CC Deactivate retry count: 3
OAM SEGMENT CC retry frequency: 30 second(s),
OAM Loopback status: OAM Received
OAM VC state: Verified
ILMI VC state: Not Managed
OAM END CC status: OAM CC Ready
OAM END CC VC state: Verified
OAM SEGMENT CC status: OAM CC Ready
OAM SEGMENT CC VC state: Verified
VC is managed by OAM.
InARP frequency: 15 minutes(s)
InPkts: 289035, OutPkts: 217088, InBytes: 21165546, OutBytes: 17367793
InPRoc: 289039, OutPRoc: 289274
InFast: 0, OutFast: 0, InAS: 1, OutAS: 2
Out CLP=1 Pkts: 0
OAM cells received: 119900
F5 InEndloop: 119809, F5 InSegloop: 0,
F5 InEndcc: 0, F5 InSegcc: 0, F5 InAIS: 92, F5 InRDI: 0
OAM cells sent: 119902
F5 OutEndloop: 119810, F5 OutSegloop: 0,
F5 OutEndcc: 0, F5 OutSegcc: 0, F5 OutAIS: 0, F5 OutRDI: 92
OAM cell drops: 0
Status: UP
```

Testing Network Connectivity Using Ping in Normal Mode Example

The following is sample output for the **ping atm interface atm**command in normal mode:

```
Router# ping atm interface atm1/1.1 0 500
Type escape sequence to abort.
Sending 5, 53-byte end-to-end OAM echoes, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/16/52 ms
Router# ping atm interface atm1/1.1 0 500 seg-loopback
Type escape sequence to abort.
Sending 5, 53-byte segment OAM echoes, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
Router# ping atm interface atm1/1.1 0 500 end-loopback 100 25
Type escape sequence to abort.
Sending 100, 53-byte end-to-end OAM echoes, timeout is 25 seconds:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip min/avg/max = 4/13/180 ms
Router# ping atm interface atm1/1.1 0 500 seg-loopback 50 20
Type escape sequence to abort.
Sending 50, 53-byte segment OAM echoes, timeout is 20 seconds:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (50/50), round-trip min/avg/max = 1/1/4 ms
Router# show atm pvc 0/500
VC 0/500 doesn't exist on interface ATM1/0 - cannot display
ATM1/1.1: VCD: 2, VPI: 0, VCI: 500
UBR, PeakRate: N/A (UBR VC)
AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0
OAM frequency: 10 second(s), OAM retry frequency: 1 second(s)
OAM up retry count: 3, OAM down retry count: 5
OAM END CC Activate retry count: 3, OAM END CC Deactivate retry count: 3
OAM END CC retry frequency: 30 second(s),
OAM SEGMENT CC Activate retry count: 3, OAM SEGMENT CC Deactivate retry count: 3
OAM SEGMENT CC retry frequency: 30 second(s),
OAM Loopback status: OAM Received
OAM VC state: Verified
ILMI VC state: Not Managed
OAM END CC status: OAM CC Ready
OAM END CC VC state: Verified
OAM SEGMENT CC status: OAM CC Ready
OAM SEGMENT CC VC state: Verified
VC is managed by OAM.
InARP frequency: 15 minutes(s)
InPkts: 290975, OutPkts: 219031, InBytes: 21306632, OutBytes: 17509085
InPRoc: 290979, OutPRoc: 291219
InFast: 0, OutFast: 0, InAS: 1, OutAS: 2
Out CLP=1 Pkts: 0
OAM cells received: 120881
F5 InEndloop: 120734, F5 InSegloop: 55,
F5 InEndcc: 0, F5 InSegcc: 0, F5 InAIS: 92, F5 InRDI: 0
OAM cells sent: 120882
F5 OutEndloop: 120735, F5 OutSegloop: 55,
F5 OutEndcc: 0, F5 OutSegcc: 0, F5 OutAIS: 0, F5 OutRDI: 92
OAM cell drops: 0
Status: UP
```

Testing Network Connectivity Using Ping in Interactive Mode Example

The following is sample output for the **ping**command in the interactive mode:

```
Router# ping
Protocol [ip]: atm
ATM Interface: atm1/1.1
```

```
VPI value [0]: 0
VCI value [1]: 500
Loopback - End(0), Segment(1) [0]:
Repeat Count [5]:
Timeout [2]:
Type escape sequence to abort.
Sending 5, 53-byte end-to-end OAM echoes, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/9/12 ms
```

Additional References

The following sections provide references related to the ATM OAM Ping feature.

Related Documents

Related Topic	Document Title
Configuring PVCs and mapping a protocol address to a PVC while configuring ATM	Configuring PVCs section of *Cisco IOS Configuring ATM Feature Guide*
Configuring ATM	*Cisco IOS Configuring ATM Feature Guide*
ATM commands, complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS Asynchronous Transfer Mode Command Reference*
Configuring ATM OAM traffic reduction	"ATM OAM Traffic Reduction" feature module
Configuring PVCs with or without OAM	"Using OAM for PVC Management" sample configuration
Detecting failures when using OAM cells and PVC management	Troubleshooting PVC Failures When Using OAM Cells and PVC Management technical note
Cisco IOS commands	Cisco IOS Master Commands List, All Releases

Standards

Standard	Title
ITU-T Specification I.610 (ITU-T specification for B-ISDN operation and maintenance principles and functions).	I.610 Series I: Integrated Services Digital Network Maintenance principles

MIBs

MIB	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
None	--

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for the ATM OAM Ping

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to . An account on Cisco.com is not required.

Table 1: Feature Information for ATM OAM Ping

Feature Name	Releases	Feature Information
ATM OAM Ping	12.0(21)S 12.2(28)SB 12.2(18)SXE 12.2(33)SRE 12.2(13)T	The ATM OAM Ping feature lets the router automatically detect when a peer ATM interface is in loopback mode. When loopback is detected on an interface where end-to-end F5 OAM is enabled, the impacted PVC is moved to a DOWN state, and traffic is suspended. When the loopback condition in the peer ATM interface is removed, the PVC is moved back to an UP state. The following command was introduced: **ping atm interface atm**